



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/511,035

10/13/2004

Kenichi Nakamura

019519-440

6280

21839 7590 04/06/2007  
BUCHANAN, INGERSOLL & ROONEY PC  
POST OFFICE BOX 1404  
ALEXANDRIA, VA 22313-1404

EXAMINER

JACKSON, MONIQUE R

ART UNIT

PAPER NUMBER

1773

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

04/06/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/511,035

Applicant(s)

NAKAMURA ET AL.

Examiner

Monique R. Jackson

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/04</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: the preliminary amendment filed 10/13/04 makes changes to Figure 4a-d and updates the specification accordingly, however it is noted that the specification now fails to provide a brief description of Figure 4c and 4d.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 101*

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 24 and 26 are rejected under 35 U.S.C. 101 because the claimed recitation of a process, without setting forth any steps involved in the process, results in an improper definition of a process, i.e. results in a claim which is not a proper process under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App.1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-15, 18, and 24-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "high refraction" is a relative term which renders

Art Unit: 1773

the claim indefinite. The term "high refraction" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Hence, it is unclear at what refractive index the film is considered a high refraction film.

6. Claims 9, 20 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 9 comprises two separate sentences given that there are two periods, one at the end of line 3 and one at the end of line 8. Hence, it is unclear whether the limitations in lines 4-8 are meant to be part of the claim. Similarly, claim 20 includes an additional period at the end of line 2 and Claim 23 includes an additional period at the end of line 3. It is also noted that the formula in claim 20, formula (III) appears to be incomplete, e.g. missing bonds, making it unclear where the CF<sub>3</sub>, O and X are to be attached.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4, 6-19, and 21-32 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 1089093 (EP'093.) EP'093 teaches the same structure as the claimed anti-reflection film, polarizing plate comprising the anti-reflection film, and image display device using the anti-reflection film or the polarizing plate wherein the anti-reflection film comprises a laminate of a high-refractive index layer having a refractive index of 1.65-2.40 comprising 5-65% by volume

Art Unit: 1773

of inorganic fine particles having an average particle size of 1-200nm and 35-95% by volume of a polymer; and a low-refractive index layer having a refractive index of 1.30-1.55 (Abstract; Paragraph 0039.) EP'093 teaches that the inorganic particles have a core-shell structure with the core composed mainly of titanium dioxide and the shell composed mainly of an inorganic compound other than titanium dioxide, preferably alumina, silica or zirconia; with other elements for the inorganic particle including Zr and Al; wherein the amount of the shell is 2-50wt% to the core and wherein the term "composed mainly" means that this component is largest in content by weight amount all constituent components (hence the Examiner takes the position that upon formation of the core-shell structure, a small or minor amount of the "shell" material is inherently present within the "core"; Paragraph 0002; Page 5, lines 45-50; Page 9, line 40-Page 10, line 20.) EP'093 teaches that the core-shell particles have a specific surface area of preferably 10-400 m<sup>2</sup>/g, and may be surface treated with an organic compound including polyol, alkanolamine, stearic acid, titanate, or preferably a silane coupling agent (Paragraphs 0070, 0072.) The inorganic particles are utilized in a dispersed state with examples of the dispersing medium listed in paragraph 0075. EP'093 teaches that the high-refractive index layer further includes a crosslinking polymer having an anionic group which functions to maintain the dispersion state of the inorganic fine particles and a repeating unit having a crosslinking structure (0077-0087) and is formed by adding a monomer thereof to a dispersion of the inorganic fine particles and then conducting crosslinking reaction or polymerization of the monomer at the same time or after coating the solution (hence reads upon a dispersant; Paragraphs 0077-0087 and 0093.) EP'093 also teaches the general structure of suitable silane coupling agents which reads upon the claimed silane compounds which lower or eliminate photocatalytic active as in

Art Unit: 1773

instant claim 9 (Page 15.) EP'093 teaches that the anti-reflection film preferably has a transparent support. EP'093 further teaches that the low-refractive layer includes an overcoat layer of fine particles of fluorine-containing compound that fill into some of the voids of the low-refractive layer (Paragraphs 0172-0174.) The fluorine-containing compound is preferably a fluorine-containing polymer including a copolymer of a fluorine-containing vinyl monomer as instantly claimed with an ethylenically unsaturated monomer containing no fluorine atom including those as disclosed in paragraph 0181 and preferably has a crosslinking or polymerizable group in a side chain, including acryloyl and methacryloyl groups (as in instant claim 19.) EP'093 further teaches the claimed structure for the polarizing plate structure and image display device as instantly claimed. Though EP'093 does not specifically teach that the disclosed shell material on the inorganic titanium dioxide particles or the silane coupling agent lower or eliminate the photocatalytic activity of the particles, the Examiner takes the position that the disclosed shell materials and silane coupling agent, being the same compounds as instantly claimed, would inherently provide the same effect on the photocatalytic activity of the particles.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP '093.

The teachings of EP'093 are discussed above. Though EP'093 teach the low refractive layer

Art Unit: 1773

comprises a fluorine-containing polymer including a copolymer of a fluorine-containing vinyl monomer as instantly claimed with an ethylenically unsaturated monomer containing no fluorine atom including those as disclosed in paragraph 0181 and preferably has a crosslinking or polymerizable group in a side chain, including acryloyl and methacryloyl groups, EP'093 does not specifically teach the mol % ranges as instantly claimed. However, given that EP'093 generally describe the function of the disclosed comonomers, one skilled in the art at the time of the invention would have been motivated to utilize routine experimentation to determine the amount of each monomer, within the broad range of 0-100mol%, to provide a fluorine-containing polymer with the desired properties. In terms of Claim 5, though EP'093 teach various inorganic elements that can be incorporated into or coated on the inorganic particles, namely the titanium dioxide particles, EP'093 does not specifically teach the use of Co, however Co is an obvious, functionally equivalent metal compound to those disclosed by EP'093 and would have been obvious to one skilled in the art at the time of the invention.

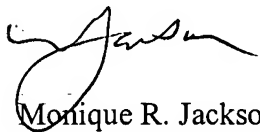
11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chopin et al (USPN 6,037,289) teach a titanium dioxide coating comprising modified titanium dioxide particles suitable for on optical substrates. Murata et al (USPN 6,777,070) teach an antireflection film and polarizing film comprising the film.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R. Jackson whose telephone number is 571-272-1508. The examiner can normally be reached on Mondays-Thursdays, 8:00AM-4:30PM.

Art Unit: 1773

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Monique R. Jackson  
Primary Examiner  
Technology Center 1700  
April 2, 2007